

**EXTREME
WEATHER
GUIDE**



awake

WINDOW & DOOR CO.



EXTREME WEATHER GUIDE

Weather, climatic conditions, and other acts of nature can have a profound impact on the appearance, operability, safety, and useful life of window and door products. The following guide provides information and tips regarding the nature and cause of conditions that may result from extreme weather or other environmental factors and ways to mitigate such effects.



CONDITIONS CAUSED BY EXTREME TEMPERATURE DIFFERENTIALS BETWEEN INTERIOR AND EXTERIOR AIR

Glass and metal, including aluminum are profoundly impacted by temperature variations and humidity levels. When outside air is much colder or warmer than inside climate-controlled air, the differential can manifest in several temporary and naturally occurring conditions including the following.

Condensation

Significant differences in temperature between inside and outside air can cause water to accumulate on the exterior or interior glass surface, known as condensation. This condition occurs because warm air can hold more water vapor than cool air. When warm air is suddenly cooled, it loses its ability to hold moisture and releases such moisture in the form of water particles. For example, in cold weather climates, condensation can occur when warm inside air comes into contact with cold glass surfaces (cooled by outside air). As the warm air quickly cools, it loses its ability to hold moisture. The excess moisture condenses and water droplets or ice can be visible on the glass exterior. Based on this same process, water particles or ice can form on glass interiors if inside air is extremely warm and humid. As humid air, which holds a lot of water vapor, comes into contact with cool surfaces (such as glass or stone countertops), it loses its ability to hold the moisture and droplets or frost form.

Although condensation can distort visibility, any such distortions are temporary, naturally occurring and not an indication that there is anything wrong with the product. Therefore, the appearance of interior or exterior condensation does not qualify the glass for replacement.

However, not all condensation should be ignored. Condensation and ice accumulation on interior surfaces is typically an indication of excessive humidity inside the home, which may not only cause degradation of window and door finishes but if left untreated, can cause other unwanted conditions such as mold or mildew accumulation.

Accordingly, the following steps should be taken to reduce interior and exterior condensation:

1. Increase ventilation, including:
 - Running fans;
 - Using kitchen and bathroom exhaust fans after cooking or showering;
 - Opening windows, when possible;
 - Keeping interior doors open;
 - Removing window coverings (such as opening blinds and curtains which restrict airflow);
 - Ensuring all airways in and out of the home are clear (including chimneys and furnaces); and
 - Leaving a space between walls and furniture to increase circulation of air flow.

2. Reduce excess humidity inside the home, including:
 - Opening bathroom windows and turning extractor fans on after showers;
 - Dry clothes outside when possible or in an enclosed room with the window open;
 - Ensure the ventilation pipe to the clothes dryer exhausts to the outside;
 - Maintain plumbing and adequate drainage to avoid water leaks or accumulation; and
 - Turning off any humidifiers.

3. In warm weather climates, increasing the air temperature inside the home to reduce temperature variations.

Thermal Bowing

Temporary glass bowing or warping, often referred to as thermal expansion, is also a naturally occurring condition resulting from acute temperature differentials when direct sunlight hits a cool glass surface. The extent to which bowing or warping may be visible depends on the duration and intensity of sun exposure and whether the door frame includes an additional insulating strip, referred to as the thermal break. The thermal break insulator reduces the appearance of bowing or warping because it creates a barrier between cool inside air and warm outside air (heated by direct sunlight), thereby reducing the corresponding metal shrinkage and expansion that causes the warping effect.

Since thermal expansion is a temporary condition that occurs from natural expansion and retraction of frame materials, it does not typically qualify for glass replacement. However, there are rare circumstances where the glass itself permanently bows or warps. Some warping or bowing is an expected result of the glass production process and can be more pronounced the thinner the glass. ASTM C1048, describes the acceptable bowing tolerances for glass depending on its size and thickness.

Additionally, steps can be taken to reduce the appearance of natural thermal expansion, including:

1. Selecting thermally broken doors in warmer climates with significant sun exposure; and
2. Reducing direct sun exposure with shades, awnings, trees, or other coverings.

The extensive cleaning described above should continue to occur no less than every two weeks during the remainder of the time the property is under construction and shall be performed in accordance with the cleaning procedures described below.

Conditions Caused by Pollutants and Corrosive Agents

Harsh environmental conditions can degrade the integrity, appearance, and operability of windows and doors. For example, salt water, pollutants, and other atmospheric chemicals such as sulfur dioxide and sulfuric acid can result in harmful chemical processes, including accelerated oxidation and corrosion. Although naturally occurring, these processes can cause a variety of aesthetic and functionality degradations, including accelerated wear, discoloration, staining, pitting, and loss of lubrication or protective coatings, impeding proper hardware operability.

These conditions are a natural result of exposure to corrosive agents in the environment and do not indicate a product defect. However, the effects can be mitigated with proper care and maintenance. Specifically, it is imperative to strictly follow the cleaning techniques and frequency schedules recommended in Awake's Care and Maintenance Guide to ensure harmful agents do not accumulate for extended periods on product surfaces.

If products are installed in areas with high exposure to chemicals, smoke, pollutants, or corrosive agents, such as coastal climates (closer than 3 miles from salt water), industrial areas, or regions exposed to fires or volcanic eruptions, increased cleaning frequency is required.

Failure to follow the cleaning procedures and frequencies described in Awake's Care and Maintenance Guide may not only cause product damage but can void Awake's limited express warranty. For more information, see Awake's Care and Maintenance Guide, available at www.awakewdc.com.



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